

Can Africa Feed Itself? Oslo, Norway, 6-8 June 2007

ORGANIC AGRICULTURE AND FOOD SECURITY IN AFRICA

Nadia El-Hage Scialabba

Senior Officer (Environment and Sustainable Development)
Food and Agriculture Organization of the United Nations, Rome, Italy
nadia.scialabba@fao.org

INTRODUCTION

Over the next 40 years, agriculture will have to carry out an enormous, threefold task:

- feeding an extra three billion mouths as global population rises from six to nine billion;
- feeding the 854 million human beings who now suffer hunger and malnutrition;
- supplying bioenergy feedstock to meet a growing share of the world's power needs.

In order to double world cereal production between 1961 and 1985, the Green Revolution of the 20th Century spent open-handedly from once plentiful resources – fossil energy, land and water. But with diminishing resources and the environmental down-side of highly intensive farming systems now apparent, we can no longer afford such abandon. As we consider the possible components of a Green Revolution of the 21st Century, it is clear we will need to produce more while also husbanding our natural resources much more sustainably. The implication is that the key inputs this time will be knowledge and innovation rather than ever greater doses of chemical fertilizers and pesticides.

Also clear is that there will be no “one size fits all” solution to the problem of how to feed billions more while safeguarding the environment. As in the energy sector, where future supplies will most likely derive from co-generation, agriculture will very probably have to rely on a mix of systems, depending on which works best in local conditions.

Most people would be surprised to learn that modern, innovative organic agriculture could well play a significant role here. In May 2007, FAO organized an international conference on “Organic Agriculture and Food Security” where 350 public and private sector participants from 80 countries agreed that organic agriculture could help reduce hunger and malnutrition.

Food security

FAO projections for the period of 1999 to 2030 estimate an increase of global agricultural production by 56 percent, with arable land expansion accounting for 21 percent of production growth in developing countries. For this same period, the share of irrigated production in developing countries is projected to increase from 40 to 47 percent (FAO, 2006b). Arable land expansion and large-scale

¹ Proceedings of this Conference can be ordered from Norway Development Fund: u-fondete@u-fondet.no

irrigation are a cause of concern with regards the loss of ecosystem services. Although the number of undernourished people will decline, high rates of poverty and food insecurity are expected to continue with the present models of food production and consumption, along with further natural resource degradation.

Seventy-five percent of the world's 1.2 billion poor live in rural areas of developing countries. They suffer from problems associated with subsistence production in isolated and marginal locations with low levels of technology. These subsistence and livelihood systems are risk-prone to drought and floods, crop and animal diseases, and market shocks. However they also possess important resilience factors associated with the use of family labour, livelihood diversity (non-farm activities account for 30 to 50 percent of rural income) and indigenous knowledge that allow them to exploit risky environmental niches and to cope with crises. Pro-poor policies based on efficiency and employment generation associated with family farms can be expected to improve these household conditions.

Worldwide undernourishment is not explained only by a lack of food availability as several causes of hardship lie outside the agricultural sector. However, there is need to seek new solutions to address the problems posed by growing populations (and disparities) and environmental degradation through new paradigms for agriculture and food supply chains.

Sub-Saharan Africa remains the most food insecure region in the world, with 206 million hungry people. The share of hungry people declined from 35 to 32 percent during the last decade. The average food calories per capita was 2 210 in 2001-03. Progress varied within this sub-region; countries that showed increased economic performance were those whose governments had committed to social spending. Gabon has reduced the number of undernourished by more than 25 percent (thus, is halfway towards achieving the World Food Summit target) and other countries that show progress include: Angola, Benin, Chad, Congo, Ethiopia, Lesotho, Malawi, Mauritania, Mozambique and Namibia.

The link between poverty and hunger is apparent when considering the tight correlation between the economic and agricultural performance in Ethiopia, Ghana and Mozambique. Productivity-driven increases in food production have demonstrated a strong positive impact on rural economies through enhanced income of smallholders, who are the main producers of staples.

But the prevalence of undernourishment increased in 10 countries, mainly driven by five war-torn countries (Burundi, the Democratic Republic of Congo, Eritrea, Liberia and Sierra Leone). In fact, agricultural performance is debilitated by conflicts, diseases (e.g. HIV/AIDS, malaria) and natural disasters which further exacerbate incidence of disease.

Africa uses only 1 percent of world's fertilizers (less than 10 kg per hectare). However, the answer does not lie in providing more mineral fertilizers, as soil fertility management is complex: not all soils are responsive to urea and such inputs are difficult to distribute in a timely manner. More importantly, poor households have little access to credit and input prices often exceed commodity prices on the market.

Although the root causes of hunger lie outside the agricultural sector, 80 percent of Africa's population depends on farming for living. Small holder agriculture, for both subsistence and commercial purposes, is the dominant system. In order to increase food security, there is need for an environmentally and socially responsive agricultural system, based on smallholders' needs. It is

critical to close the inequality gap and give poor people (especially women) a chance to better care for themselves.

Organic agriculture

Organic agriculture is generally assumed to cater to a luxury niche whose customers can afford to shop in health food, rather than hard discount, stores. While that may once have been true, the reality today is that organic supply is now the world's fastest-growing food sector, increasing at 15 percent a year over the last decade and worth some 40 billion dollars in 2006 (or 2 percent of food retails). Consumer studies too reveal that organic buyers are not so much better-off as generally more aware of food issues (e.g. educated middle age women with children).

Currently, organic agriculture is commercially practiced in 120 countries, representing 31 million ha of certified croplands and pastures (~ 0.7 percent of global agricultural lands and an average of 4 percent in the European Union) and 62 million ha of certified wild lands for organic collection of bamboo shoots, wild berries, mushrooms and nuts (Willer and Youssefi, 2007). Although difficult to quantify, non-certified organic systems (e.g. indigenous models that follow organic principles by intent or by default) of several million small farmers may represent at least an equivalent share in subsistence agriculture of developing countries.

In Africa, certified organic lands cover 890 504 hectares (or 0.12 percent of agricultural lands), involving mainly permanent crops such as olives, tropical fruits, nuts, coffee, cocoa but also cotton, herbs/spices, etc. The sector employs 124 805 farmers in 24 countries, and Uganda has the world's biggest number of organic farmers. The main countries with certified organic farms are: Sudan (200 000 ha and 650 farms), Kenya (182 586 ha and 15 815 farms), Uganda (182 000 ha and 45 000 farms), Tunisia (143 099 ha and 515 farms), Tanzania (38 875 ha and 43 791 farms) and Zambia (2 884 ha and 9 248 farms). Most certified organic production is geared toward export markets, mainly the European Union.

Also, Africa counts 27 million certified wild areas - in Kenya, Zambia, South Africa, Namibia and Uganda - which export organic products such as sheabutter, roship, gum Arabic, argan oil and honeybush. This represents a tiny part of a large collection potential.

In Africa, organic agriculture is rarely certified, due to lack access to lucrative markets. The continent, however, offers a potential basis for the development of non-certified organic agriculture, based on improved agroecological management of traditional African agriculture, which is a *de facto* low external input system, practiced by smallholders who cannot afford expensive technologies and who lack functioning markets.

Definitions

A frequent misconception is that organic agriculture means turning back the clock to a primitive mode of farming. While organic agriculture does build on traditional knowledge and practices, what it offers is a modern, ecologically intensive farming system that can perform successfully without any synthetic fertilizers or pesticides. This is achieved through a combination of techniques including intercropping with nitrogen-fixing legumes (or with other crops that produce synergies), crops rotation, biological pest control, use of locally adapted seeds/breeds and the re-integration of animals on farms. In the process, the stability and resilience of the surrounding ecosystem is improved rather

than depleted as may be the case when high levels of artificial inputs are used. An ecological balance that maximizes nutrient and energy cycling is established between soil, plants, animals – and humans. Organic agriculture can be described as “neo-traditional food system”, as it uses scientific investigation to improve traditional farming practices anchored in multicropping systems, natural food preservation, and storage and risk aversion strategies that have traditionally secured local food needs.

Organic agriculture is governed by detailed standards and lists of allowed and prohibited substances. The organic community² has adopted four overriding principles for organic agriculture.

- *Principle of Health: organic agriculture should sustain and enhance the health of soil, plant, animal and human as one and indivisible.*
- *Principle of Ecology: organic agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.*
- *Principle of Fairness: organic agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.*
- *Principle of Care: organic agriculture should be managed in a precautionary and responsible manner to protect the health and well being of current and future generations and the environment.*

Organic agriculture is defined in each of the 60 countries having an organic regulation (at some stage of development), as well as by the Codex Alimentarius Commission, as a holistic production management system that avoids use of synthetic fertilizers, pesticides and genetically modified organisms, minimizes pollution of air, soil and water, and optimizes the health and productivity of interdependent communities of plants, animals and people.

The term “agriculture” is here used to include crop/livestock systems, organic aquaculture and organic harvesting of non-timber forest products. Agricultural products include food, fibres and medicinal and cosmetic raw materials. The organic agriculture system encompasses the entire food supply chain, from production and handling, through quality control and certification, to marketing and trade.

In the market place, the organic claim requires certification, and related products are distinguished by an organic label, which often entails a price premium. Certified organic products offer an opportunity to commercialise small holder commodities by capitalizing on quality. Besides market opportunities, organic agriculture offers advantages to raise agricultural productivity for local consumption without relying on capital investment to buy inputs.

Organic agriculture includes both certified and non-certified food systems. Farming systems that actively follow organic agriculture principles are considered organic, even if the agro-ecosystem or the farm is not formally certified organic. It is however important to keep in mind that the non-use of external agriculture inputs does not in itself qualify a system as “organic”, especially if this results in natural resource degradation (such as soil nutrient mining). Therefore, it is erroneous to assume that African traditional systems are all organic; only those which sustain ecosystem productive capacity can be considered organic.

² International Federation of Organic Agriculture Movements (IFOAM).

POTENTIAL IMPACT OF ORGANIC AGRICULTURE ON AFRICAN FARMING

Demystifying the organic productivity debate

In terms of output, organic yields can be broadly comparable to conventional ones and can increase productivity as a result of transitioning from the low-input systems normally found in developing countries, and Africa in particular. This is achieved by capitalizing on existing resources such as labour and harnessing natural resources processes (e.g. soil fertility or pest-predator balance).

Transition to organic management could have enormous implications for food security, where farmers could virtually double their output without having to invest in expensive – and environmentally unfriendly – synthetic inputs. Obviously, extension will be of fundamental importance to build agroecological knowledge. The fact that organic agriculture emphasizes multi-, rather than mono-cropping is also important in terms of food security, which can be jeopardized when farmers produce a single commodity and have no safety net to fall back on. In organic agriculture systems, purchased input costs tend to be 40 percent lower while less irrigation water is needed. Furthermore, organic agriculture could give smallholder farmers the chance to access lucrative commercial markets for organic produce, on condition of course that affordable certification procedures and trading partnerships are established.

While certified organic agriculture offers market competitiveness, non-certified organic systems offer advantages for subsistence agriculture, especially in areas where inputs are not available and labour is abundant. In both cases, agroecological knowledge is a precondition, posing the challenge of establishing adequate extension systems.

According to a study carried out on behalf of the International Food Policy Research Institute (IFPRI), switching to organic agriculture in sub-Saharan Africa would likely increase food availability and decrease food import dependency, with negligible changes in prices and no changes in current malnutrition rates (Halberg, 2006). Of particular relevance to sub-Saharan Africa and tropical countries in general is that organic crops are grown from traditional, local seed varieties rather than from commercial, laboratory-bred ones. The former are much more resilient to environmental stresses (e.g. drought, floods) and local pests and diseases and would thus help mitigate the impact of global warming or inter-annual climate variability on the food supply of developing economies.

Recent models of a hypothetical global food supply grown organically indicates that organic agriculture could produce enough food on a global *per capita* basis for the current world population: 2 640 and 4 380 kcal/person/day, depending on the model used (Badgley, *et al.*, 2007; Halberg, *et al.*, 2007). The lower value is based on the adult 2 650 kcal daily caloric requirement, while the higher value is based on expectations of a 57 percent increase in food availability, especially in developing countries, giving it the potential of supporting even a larger human population. These results considered the average organic yield ratio of different food categories with no further increase in the current agricultural land base. Also, the model was based on substituting synthetic fertilizers currently in use with nitrogen fixation of leguminous cover crops in temperate and tropical agro-ecosystems. These models suggest that organic agriculture has the potential to secure a global food supply, just as conventional agriculture today, but with reduced environmental impacts.

Productivity in organic systems is management specific. Studies suggest that switching to organic management commonly results in yield reduction in perennial crops (up to 50 percent) and during the

conversion period for high external input systems in areas with favourable crop growth conditions (up to 40 percent). However, in regions with medium growth conditions and moderate use of synthetic inputs, organic productivity is comparable to conventional systems (92 percent) and in subsistence agricultural systems, organic agriculture results in increased yields up to 180 percent. Overall, the world average organic yields are calculated to be 132 percent more than current food production levels (Badgley, *et al.*, 2006).

In Africa, conversion to organic agriculture was estimated to increase productivity by 56 percent by 2030. Organic yield ratios for different food categories compared to current non-intensive methods show the following results (Badgley *et al.*, 2007):

Crop/product	Yield ratio	Country
Maize	1.3	Benin
Maize	3.49	Kenya
Millet	1.73	Ethiopia
Rice	3.09	Gambia
Sorghum	1.50	Ethiopia
Sorghum	5.67	Mali
Cassava	1.75	Ghana
Sweet potatoes	5.83	Ethiopia
Peanut	1.64	Senegal
Vegetables	1.48	Malawi
Vegetables	2.0	Kenya
Banana/plantain	4.0	Uganda
Milk	1.3	Uganda
Milk	4.57	Tanzania

These preliminary results are only indicative. Beyond the productivity issue which is often the focus of debate, food security also concerns aspects such as access to food (e.g. input and output prices, market access) and access to means of production (e.g. access to land, water), the stability of agricultural systems in the face of rapidly changing climate conditions (e.g. precipitation patterns, new pests and diseases, intensified weather extremes such as floods and droughts) and the nutritional adequacy of the food supply to households.

Contribution of organic agriculture to household nutrient intake

By diversifying and optimizing farm productivity, reducing the need for purchased inputs and, eventually, developing households' market-orientation for earning additional income, organic systems contribute to hunger and poverty alleviation. Every 10 percent increase in crop yield reduces the number of income-poor by an average 7.2 percent in sub-Saharan Africa (Byerlee and Alex, 2005). Improved income allows farmers to buy food in what would otherwise be "hungry months".

Harnessing the lucrative gains that come from marketing organic commodities can allow seasonal or permanent diversification away from staples into high-value alternatives such as vegetables, depending on the degree of physical and human capital investment and agro-ecosystem flexibility. Although in most cases, staple food systems will remain dominant sources of food supply and off-farm activities are more dependable sources of income, organic diversification offers higher returns from land and labour investments. However, the diversification start-up is often associated with high-

price volatility which needs to be countered with improved marketing intelligence. Secure land and water use rights are more important preconditions for investments in organic diversification and commercialization than for other forms of agriculture.

Organic school and home gardens that cultivate traditional plants and animal breeds offer a promising option for improving the nutritional status of poor people both in rural and peri-urban areas. Such systems greatly contribute to food availability, safety of children and nutritional status of families. In many cases, poorly known varieties become income generation opportunities through marketing of processed specialty foods or medicinal, aromatic or dye plants, which are in high demand on domestic and export markets.

Contribution of organic agriculture to transitional food emergency situations

Poor households cannot afford production risks and maximum yields are not as important as securing food for the family. Organic fields show lower fluctuations in yields and diversification is the best assurance in cases of a single crop failure, environmental adversity or socio-economic shocks. With the intensification of weather extremes, increasing the resilience in agro-ecosystems to weather has become an imperative, especially in agriculture-based economies.

Contribution of organic agriculture to healthy diets

Although modern food patterns have greatly contributed to combating undernutrition, the specialization of agricultural systems into a few staple foods has exacerbated micronutrient deficiencies. Limited dietary diversity and related micronutrient deficiencies (e.g. vitamin A, iodine, iron) affect more than half of the children in developing countries. This is a major public health concern, usually addressed through supplementation and food fortification but with low efficiency, especially in targeting vulnerable segments of population.

Promoting a diverse local food supply, accessible to poor households, has proven to be a simple and successful way to improve malnutrition. The cropping diversity found on organic fields, coupled with rotation crops of minor economic value but high micronutrient and protein content, enriches household diets and health. Choosing to forego synthetic inputs requires using more under-utilized seeds and breeds for their better resistance to pest, diseases and climatic stress. The re-introduction, selection and improvement of locally-adapted varieties make an invaluable contribution to “hidden hunger”, or dietary micronutrient deficiencies. Consumer surveys find that organic consumers have a better nutritional status, especially due to choices of “minor” legumes that contribute to healthier diets.

Organic agriculture as a source for productive labour

Agriculture occupies 80 percent of the population of Africa, while in developed countries it is 1 to 2 percent of the population. However, agricultural employment remains a source of social and ecological wellbeing of global importance. In all countries, the replacement of agricultural labour with chemicals and machinery raises concerns about social stability (e.g. breakdown of communities, mass migration, large-scale urbanization), as well as the devastating impact on the natural environment. Replicating the system of industrial food production dominant in developed countries in developing countries where agriculture provides livelihoods for 2.5 billion people will increase the number of displaced, dispossessed and hungry, if no alternatives are created.

Agriculture is the main employer in rural areas and wage labour provides an important source of income for the poor. Thus, by being labour intensive, organic agriculture creates not only employment but improves returns on labour, including also fair wages and non-exploitive working conditions. New sources of livelihoods, especially once market opportunities are exploited, in turn revitalize rural economies and facilitate their integration into national economies. In several settings, it has been noted that increased control over resources (labour power, production system) develops self-awareness and collective self-help which lead to overcoming marginalization.

Increasingly, organic agriculture is being adopted as a rural development strategy (e.g. European Action Plan for Organic Food and Farming, 2005) and vibrant organic communities can be observed in rural areas of many countries. In the UK, it is estimated that the move towards big farms has resulted in a 61 percent decline in total income from farming and a 39 percent decline in the average income per person employed in agriculture over the past 30 years (Soil Association, 2006). Organic farms provide more than 30 percent more jobs per ha than non-organic farms and, thus, create employment opportunities. This ratio is further increased if on-farm processing and direct marketing are considered, because such enterprises are more likely fostered in organic systems. Rather than displacing the agricultural workforce, organic agriculture safeguards livelihoods by keeping people on the land and living from it.

Organic agriculture as provider of global environmental services

Well managed organic agriculture uses a number of preventive approaches that can greatly reduce the risk of severe yield fluctuations due to climatic and other uncontrolled incidents, contributing to the resilience of the food supply. Due to its agro-ecological approach, organic agriculture is an effective means to restore environmental services. This factor is much more important than individual practices (e.g. use of drought-resistant crops) in preventing system imbalances such as new pest and disease outbreaks. It is organic management's self-correcting process that gives a climate-related value to the agro-ecosystem.

Organic agriculture avoids many damaging environmental effects by omitting the use of polluting substances such as nitrogen fertilizers and synthetic pesticides, as well as reducing anthropogenic impacts on desertification, biodiversity erosion and climate change. It is becoming urgent to enhance, through organic agriculture, the development of skilled agricultural labour in order to make the transition away from the current fossil fuel dependent agricultural systems whilst maintaining food production.

Also, organic agriculture could reduce the energy footprint of food through low carbon farming systems and markets. It in fact offers a great potential in local sourcing of diversified foods, through low carbon systems and shorter supply chains, to the extent possible. Direct marketing, a typical feature of organic supply systems, creates connection and trust between farmers and consumers on the quality claim. Short supply chains and localized food systems are also drivers for positive environmental impacts. For instance, reduced distances between production and consumption decrease transportation needs and, thus, energy use. Greater national food self-sufficiency would contribute to addressing new challenges such as global fossil fuel shortages (and rising agricultural input prices), climate change and transport breakdowns through greater resilience in the food chain.

Organic agriculture for local food provisioning

Food import surges have become more frequent since the mid-1990s³ and the increasing trend of food-import dependency is a source of concern as many developing countries are turning from net agricultural exporters to net food importers. The past 50 years have seen a persistent decline, averaging 2 percent per year, of real commodity prices, posing problems to the income of farmers and national economies that depend heavily on a few commodities for export earnings (e.g. coffee in Ethiopia, cotton in Burkina Faso). In agriculture-based economies, insufficient farming income translates into lack of sufficient purchasing power to pay for food and imported goods. Trade reform can be damaging to food security in the short to medium term if it is introduced without a policy package designed to offset the negative effects of liberalization (Thomas, 2006). The debate in the WTO negotiations is in fact considering the designation of “Special Products”, based on the criteria of food security, livelihood security and rural development needs (Hong Kong Ministerial Declaration, 2005). It would be interesting to see if the case could be made for some organic commodities, especially for small countries that wish to compete with quality.

For developing countries, trade-based food provisioning limits the competitiveness of smallholders and the ability of the market-marginalized to provide for their needs. Considering that three quarter of the poor live on the land and most are farmers or farm workers, it is in small holder agriculture where change is needed to increase the food supply. Factors that contribute to stagnating domestic production are low output prices, high input costs, adverse weather, pest and disease outbreaks, and consumer preference (FAO, 2007b).

The fact that poor farmers often live in areas where there are few employment alternatives and agricultural inputs are not supplied makes organic agriculture a unique alternative for local food provisioning, provided that agro-ecological knowledge is available. Sustainable intensification of available natural resources in subsistence-oriented regions has proven to increase smallholders’ food self-reliance and, eventually, decrease national food import requirements. Organic agriculture offers advantages in terms of enhancing food production where it is most needed by decreasing dependence on external inputs and increasing agro-ecosystem performance. A modelling for large-scale organic conversion in sub-Saharan Africa (Halberg, 2006) suggests that agricultural yields would grow by 50 percent, thus increasing local access to food and reducing food imports.

Organic agriculture is also an opportunity to commercialize small holder agriculture. A market-oriented food system, if available, offers additional income generating opportunities that allow small producers to compete through the quality of their product while encouraging local food supply. Higher organic prices reflect production cost and internalize environmental and social values. Higher food prices also increase food import bills and may compromise low-income food buyers in the short run; however, higher food prices represent higher incomes to producers, with positive implications on longer term economic growth and agricultural development.

³ An analysis of major food commodities of 102 developing countries during 1982-2003 can be found in FAO, 2007b.

Organic agriculture as a right-based to food security

In the Rome Declaration on World Food Security (1996), Heads of State and Government “*reaffirmed the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger*”. The Right to Adequate Food, adopted in 2004, complements the food security concept and programmes with seven human rights principles: human dignity, accountability, empowerment, non-discrimination, participation, transparency and rule of law. The Right to Adequate Food is defined as “*the right to have regular, permanent and unrestricted access, either directly or by means of financial purchases, to quantitatively and qualitatively adequate and sufficient food corresponding to the cultural traditions of the people to which the consumer belongs, and which ensure a physical and mental, individual and collective, fulfilling and dignified life free of fear.*”

The human-rights-based approach to food security offers new ways of identifying, analysing and solving the problems that underlie hunger and poverty, as well as an alternative method of promoting development. A rights-based approach provides the powerless with leverage to address the causes of food insecurity and poverty. It strengthens local communities to take care of their own members. Besides its market pull, organic agriculture upgrades traditional knowledge through interactive learning, strengthening farmers’ analytical abilities and creativity. Organized rural communities stand-up for their rights and extend entrepreneurial skills. In doing so, organic management revalorizes indigenous knowledge and community structures which have eroded for a variety of reasons (e.g. land alienation, population pressure, migration) and empowers social systems to control their own food supply. Furthermore, organic agriculture is in line with the right to adequate food that consumers demand.

CONCLUSIONS AND RECOMMENDATIONS

Organic food systems ought to be evaluated in a wide development context which includes the fact that agriculture has often had a detrimental impact on the environment (e.g. land degradation, water pollution, GHG emissions, biodiversity extinction and environmental services erosion) and on rural societies (e.g. disenfranchised farmers and discredited agri-culture and knowledge). Although organic agriculture is not a panacea and has its own limits in addressing challenges posed by modern lifestyle, its external environmental costs are much lower than those of conventional agriculture and, in some areas, it can reverse problems of natural degradation. Moreover, non-certified organic systems increase food availability and access exactly in those locations where poverty and hunger are most severe. Increased food performance in developing countries, through conversion of subsistence systems to organic management, is more than a serious proposition. The challenge is neither agronomic nor economic but socio-political.

The challenges facing agriculture – old challenges such as increasing world population and new challenges such as high climate variability – are equally characterized by globalization of flows, be they ecological, economic or societal. More than ever, inter-connectedness of ecosystems and people affects the performance of the food system of households and nations.

Although there is still room for improving its performance, organic agriculture continues to provide alternative models (or better alternatives) for sustainable development:

- as a response to the pollution and loss of arable lands created by conventional agricultural production, organic farmers developed non-chemical ways to farm their land successfully;
- as a response to the lack of adequate technologies and technical advice, organic farmers became innovators and experts in adaptive management;
- as a response to institutional marginalization, organic communities came together to provide some risk-bearing economies of scale, thus creating self-reliant and vibrant rural economies;
- as a response to costly third-party certification, grower groups developed participatory guarantee systems to differentiate their products on local markets;
- as a response to long distance food procurement, organic entrepreneurs developed short supply chains;
- as a response to industrialization of food chains, the organic community began discussions on the enforcement of fair working conditions and trade transparency;
- as a response to energy concerns, the organic community began looking for efficient ways to put the concept of food miles into practice.

Despite the organic community's challenge to improve its performance and maintain its principles while catering to food imperatives, organic agriculture offers lessons on:

- de-commodification of food by celebrating the environmental and social-cultural values of agriculture;
- restoring food self-reliance and transparency in the food chain by increasing the right to choose of producers and consumers;
- producing food at low cost for the poor and market-marginalized by harnessing ecological processes;
- valuing traditional knowledge and indigenous goods such as agrobiodiversity;
- creating cooperative learning processes and rural-based networks;
- developing social responsibility throughout the food supply chain;
- establishing food quality assurance and traceability procedures.

Whether market-oriented or a survival strategy in poorly-endowed settings, organic agriculture may be considered a “small economy” or a “laboratory of harmless innovations” that deserves preferential treatment – and encouragement.

With a view to encourage farmers, farm workers, gardeners, pastoralists, aquaculturists, forest dwellers, consumers and business communities of all kinds to strive democratically within the organic food model, key actions are required to establish a conducive policy environment and build capacities.

Organic agriculture is essentially a civil society enterprise which has developed outside, often against, the domain of the public sector. However, its inherent grassroots-based decision-making processes and market pull are not sufficient to sustain an equitable distribution of benefits. Public intervention is necessary to preserve a fair playing field as the sector expands, in order to protect small producers within national economies and to strengthen the position of developing countries' operators on international markets.

The main areas of action for the effective development of organic agriculture in Africa require capacity building for improving performance in the field (for household food security) and improving competitiveness on markets (for income generation) through:

- focusing on improving the use/knowledge of natural processes for food crops production;
- organic soil fertility management;
- organic pastures and livestock management;
- selection and improvement of traditional seeds and breeds;
- value-addition through processing and labelling;
- Internal Control Systems and organic certification;
- market intelligence and trade partnerships.

For subsistence agriculture and local food security (especially in market marginalized areas), a successful approach is the establishment of farmers-field-schools aimed at action learning, empowerment, knowledge sharing and development of community enterprises. For commercializing smallholder agriculture, a market chain approach for food security can be pursued such as successfully done by Uganda's 45 000 small organic farmers, in partnership with exporters.

For both subsistence and commercial agriculture, political will and conducive policies are necessary for protecting local producers from import competition as well as enhancing capacities for ecological and self-reliant food systems. With more research and development funding and the necessary level of political commitment, organic agriculture can help feed the world's growing population - both the rich and the poor – including Africa.

REFERENCES

- Badgley C., Moghtader, J., Quintero, E., Zakem, E., Chappell, J., Avilés-Vázquez, K., Samulon, A & Perfecto, I. 2007. Organic Agriculture and the Global Food Supply. Renewable Agriculture and Food Systems. June 2007.
- Byerlee, D. & Alex, G. 2005. Organic Farming: a Contribution to Sustainable Poverty Alleviation in Developing Countries? *In* German NGO Forum on Environment and Development, Bonn. Misereor, Naturland, EED, NABU and WWF.
- FAO, 2001. Organically Produced Foods. Joint FAO/WHO Food Standards Programme, Codex Alimentarius Commission, GL 32 – 1999, Rev. 1 – 2001.
- FAO. 2005. Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security. Adopted by the 127th Session of the FAO Council November 2004. Rome.
- FAO. 2006a. Mid-Term Review of Achieving the World Food Summit Target. CFS: 2006/3. Rome.
- FAO. 2006b. World Agriculture: Towards 2030/2050 – Interim Report. Global Perspective Studies Unit. Rome.
- FAO. 2006c. The State of Food Insecurity in the World 2006. Eradicating World Hunger – Taking Stock Ten Years After the World Food Summit. Rome.
- FAO, 2006d. The Right to Foods in Practice – Implementation at the National Level. Rome.
- FAO. 2007. Assessment of the World Food Security Situation, CFS:2007/2. Rome.
- FAO. 2007b. Import Surges: Analysis, Preliminary Findings and Lessons Learned, CCP 07/11. Rome.
- Halberg, N., Alroe, H.F., Knudsen, M.T. & Kristensen, E.S. 2007. Global Development of Organic Agriculture: Challenges and Prospects. CABI Publishing.
- Halberg, N. 2006. The Impact of Organic Farming on Food Security in a Regional and Global Perspective. International Food Policy Research Institute (IFPRI).
- Soil Association. 2006. Organic works. Providing More Jobs through Organic Farming and Local Food Supply. Edinburgh, Scotland.
- Thomas, H. 2006. Trade Reforms and Food Security: Country Case Studies and Synthesis. FAO.
- Willer, H. and M. Youssefi, 2007. The World of Organic Agriculture – Statistics and Emerging Trends 2007. International Federation of Organic Agriculture Movements IFOAM, Bonn, Germany and Research Institute of Organic Agriculture FiBL, Ackerstrasse, Switzerland.
- World Food Summit, 1996. Rome Declaration on World Food Security and World Food Summit Plan of Action. FAO, Rome.